

REMARKS

Claims 1-20 are pending. An Office Action mailed November 19, 2003 objected to the drawings, provisionally rejected Claims 1-20 under 35 U.S.C. § 102, and rejected Claims 1-20 under 35 U.S.C. § 103. By way of this Amendment, Applicant hereby submits formal drawings with corrections and amends the specification. Pursuant to 37 CFR § 1.111, Applicant hereby respectfully requests reconsideration of the Application.

Objection to the Drawings

The Office Action objected to the drawings because they include reference signs not mentioned in the description (29-FIGURE 1; 43-FIGURE 2). Applicant hereby removes the identified numbers from the figures, thereby making the figures comply with 37 CFR § 1.84(p)(5).

The Office Action also objected to the drawings because they do not include the following reference signs mentioned in the description: 30(b); 40(b); 67. Applicant hereby amends the specification in order to comply with 37 CFR § 1.84(p)(5).

The Office Action further states that the drawings were objected to because they have lost clarity due to being apparently photocopied. Applicant hereby submits formal drawings that clearly show the details numbered and discussed in the specification.

Rejection of Claims 1-20 Under 35 U.S.C. § 103

The Office Action rejected Claims 1-20 as being unpatentable over Applicant's admitted prior art in view of either Katzer, Lammers, et al., or Morini. Applicant respectfully traverses these rejections. The Office Action states that the applicant admitted prior art (AAPA) discloses generally a conical bearing assembly including an outer housing configured with a plurality of mounting flanges for attaching to the hub center body and a conical elastomeric bearing element having an inner race configured to receive a tie bar journal section of the rotor assembly. The Office Action further states that the AAPA does not disclose providing a pre-loaded opposing conical bearing assembly in the rotary hub assembly.

Rejection of Claims 1-20 (Katzer)

The Office Action further states that Katzer discloses a method of forming a pre-loaded opposing conical bearing assembly having the same general structural configuration as Applicant's bearing assembly. Applicant respectfully traverses this rejection.

The AAPA includes a single element conical bearing assembly that includes a conical elastomeric bearing element having an inner race. Katzer discloses a single bushing 5 that also includes a inner race 6 and 7 (FIGURE 1; col. 2, lines 30-37). Therefore, Applicant submits that if Katzer were to be combined with the AAPA, the combined device would only include a single bearing element having an inner race wherein the inner race is formed of two conical surfaces 6 and 7 which taper inwardly from outer ends of the bearing element. Therefore, Applicant submits that the AAPA and Katzer alone or in combination fail to teach or suggest forming an inboard bearing element, forming an outboard bearing element, forming an outer housing having inner surface configured to receive the inboard and outboard bearing elements as recited in Applicant's Claim 1.

Therefore, Applicant submits that independent Claim 1 is allowable over the AAPA in view of Katzer. Because independent Claims 6 and 10 are similar to independent Claim 1, they are allowed for the same reason that make Claim 1 allowable. Claims 2-5, 7-9, and 11-20 depend from allowable independent claims, therefore, they are allowable for the same reason that makes their independent claims allowable.

Rejection of Claims 1-20 (Lammers et al.)

The Office Action states that Lammers et al. disclose a method of forming a pre-loaded opposing conical bearing assembly having the same general structural configuration as Applicant's bearing assembly and that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed a fully articulated rotary hub assembly

for rotary aircraft having pre-loaded opposing conical bearing assemblies in light of Lammers et al. Applicant respectfully traverses this rejection.

Lammers et al. disclose a frame member 14 that receives metal cylindrical inserts 44 and 46. Elastomeric bearing members 18 and 20 are positioned between the surface of the shaft 12 and an inner race of the cylindrical inserts 44 and 46 (FIGURE 1; col. 2, lines 23-65). Applicant also submits that AAPA and Lammers et al. alone or in combination fail to teach or suggest forming an inboard bearing member including an inner race primarily bonded to an elastomeric element and an outer race primarily bonded to the elastomeric element, forming an outer bearing element including an inner race primarily bonded to an elastomeric element and an outer race primarily bonded to the elastomeric element as recited in Applicant's Claim 1.

Therefore, Applicant submits that independent Claim 1 is allowable over the AAPA in view of Lammers et al. Because independent Claims 6 and 10 depend from allowable Claim 1, they are allowable for the same reasons that make Claim 1 allowable. Because Claims 2-5, 7-9, and 11-20 depend from allowable independent claims, they are allowable for the same reasons that make their corresponding independent claims allowable.

Rejection of Claims 1-20 (Morini)

The Office Action states that Morini discloses a method of forming a pre-loaded opposing conical bearing assembly having the same general structural configuration as Applicant's bearing assembly. The Office Action also states that it would have been obvious to one having ordinary skill in the art at the time of the invention to have formed the fully articulated rotary hub assembly having pre-loaded opposing conical bearing assemblies in light of the teaching of Morini. Applicant respectfully traverses this rejection.

Morini discloses an outer collar 4 that attaches to an outer layer elastomeric material 11, which is bonded to a laminar insert piece 12. The laminar insert piece 12 is bonded to an inner layer elastomeric material 10, which is bonded to a central core 3. Thus, it appears that a sleeve or annular spacer 9 engages between two outer collars 4, thus forming a housing as such. The



outer collars 4 include an inner race 4A that is bonded to the outer layer elastomeric material 11. Thus, Applicant submits that neither the AAPA or Morini, alone or in combination teach or suggest forming an inboard bearing element and an outboard bearing element both including their own inner and outer races with an elastomeric element disposed there between, and inserting the inboard and outboard bearing elements into the housing.

Therefore, Applicant submits that independent Claim 1 is allowable over the AAPA in view of Morini. Because independent Claims 6 and 10 are similar to independent Claim 1, they are allowable for the same reason that makes Claim 1 allowable. Claims 2-5, 7-9, and 11-20 depend from allowable independent claims, therefore, they are allowable for the same reasons that make their corresponding independent claims allowable.

CONCLUSION

Applicant respectfully submits that all of the claims of the pending application are now in condition for allowance over the cited references. Accordingly, Applicant respectfully requests withdrawal of the rejections, allowance, and early passage through issuance. If the examiner has any questions, the examiner is invited to contact the Applicant's agent listed below.

Respectfully submitted,

BLACK LOWE & GRAHAM^{PLLC}

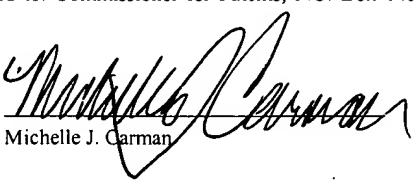

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MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via first class mail under 37 C.F.R. § 1.08 on the date indicated below addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

4/19/04
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Michelle J. Carman